Board of Water Well Contractors

WELL DEVELOPMENTS

Fall - 2006

BWWC
1424 9th Avenue
PO Box 201601
Helena MT 59620-1601
406-444-6643

Thanks For All Your Renewals!

Licenses have been sent out to everybody who met these requirements:

1. Sent in the proper fee
2. Sent in proof of continuing education credits (CEC's).
3. Sent in an original or copy of bond for 2006-2007

Please remember that proof of continuing education credits and bond are required. In the case of education, this means a hard copy of a document that can verify that a) you were in attendance and b) details what was covered in the course/convention. A list of possible CEC's can be found inside this newsletter. If you have any doubt if a course will qualify for your CEC's, contact the Board of Water Well Contractors in advance. You will be asked to provide a full description of the course you plan on attending.

Flowing Conditions

The Board has received a number of complaints involving wells under artesian (confined) conditions, particularly in cases where wells are flowing at the surface. The Administrative Rules of Montana (ARM) requires special sealing standards for flowing wells:

ARM 36.21.658

(1) When flowing water is encountered in the well, an unperforated well casing shall extend into the confining stratum overlying the artesian zone. The casing shall be adequately sealed into the confining stratum so as to prevent surface and subsurface leakage from the artesian zone.

(2) If the well flows at land surface, it shall be equipped with a control valve so that the flow can be completely stopped.

(3) The well shall be completed with packers or appropriate sealing material that will eliminate leakage around the well casing.

(4) The driller is responsible to use all reasonable methods and care to prevent leakage around the well casing within a reasonable time frame or until the board is satisfied that the leakage is controlled.

For those drillers who work in areas where flowing wells are likely, make sure that you know what you're getting into. There are several resources available to determine what conditions are expected on-site and what kind of precautions can be taken to ensure you don't find yourself in a difficult situation.

For site specific information, you can:

1) Use the Groundwater Information Center website to look at well logs and completion records for other wells in the area.
2) Use maps and other documents compiled by the Department of Natural Resources and Conservation and the Bureau of Mines and Geology. In areas under heavy development (Kalispell, Bozeman, etc.), there are likely many reports and maps available detailing the hydrogeologic properties of the area.
3) Contact the Bureau of Mines and Geology.
4) Talk with other drillers/contractors in the area.

For precautionary measures and sealing questions, you can:

1) Contact the Bureau of Mines and Geology (Jon Reiten).
2) Contact an industry grouting specialist.

IN THIS ISSUE

1 Thanks for All Your Renewals!
Flowing Conditions
2 Iron Bacteria
New Licensees
3 Continuing Education Opportunities
Public Water Supply Wells
Well Logs
4 Websites to Bookmark

Iron Bacteria

The presence of iron in well water and subsequent problems caused by iron bacteria is a fairly common occurrence in eastern and central Montana. Wells drilled into the Cretaceous sandstones (Eagle, Judith River, and Kootenai Formations), or into the Tertiary Fort Union Formation are rich in iron, and waters derived from these sources are prone to develop problems with iron bacteria. Similarly, aquifers composed of materials originating in iron-rich formations (alluvium and glacial sediments), are also highly susceptible to high iron concentrations.

High iron concentrations in groundwater along with proper pH, a suitable growth substrate, and steady heat source provide an ideal living environment for iron bacteria. They typically grow in red or brown layers on the pump and pipes, and are covered in a slimy, gelatinous sheath. While not a health hazard, the bacteria infestation can grow large enough to clog pump intakes, well screens, and pore spaces in the immediate vicinity of the well. In many cases, iron bacteria may already be present in the vicinity of the well. However, it can also be introduced into the well environment as part of the drilling process. Drillers and contractors should take extra care to disinfect their equipment so iron bacteria are not transported from one site to another. Similarly, upon completion, the wells should be disinfected in accordance with ARM 36.21.662.

Once iron bacteria are established in a well, the landowner has two options: drilling a new well into a formation that does not have high iron concentrations, or treating the affected well. The best option for a landowner is to take preventative measures, specifically regular disinfection of the well. This is usually accomplished through "shock chlorination", but another less effective method is to frequently drop calcium hypochlorite pellets into the well. In any case, it is important to detect iron bacteria early, while the infestation can be treated and controlled.

Sources

Colter, Alex and R.L. Mahler. *"Iron in Drinking Water"*. Pacific Northwest Extension Publication PNW 589, 2006.

Donvan, Joseph J. and Jeffrey S. Jacobsen. *"Iron and Iron Bacterial Problems in Montana Groundwater"*. MSU Extension Montguide MT 8804, 1988.

Driscoll, F. *"Groundwater and Wells"*. Johnson Filtration Systems Inc. St. Paul, MN., 1986.

"Iron Bacteria in Water Wells: Maintenance Recommendations and Remediation Techniques". Fact Sheet. Idaho Water Resources Research Institute.

New Licensees

Water Well Contractors

Lane Boyce, Boyce Drilling Inc, Sidney, MT

Dale Kruger, Big Sky Drilling, Helena, MT

David Lane, Griffin Dewatering, Omaha, NE

Jack Lowry, Treasure State Drilling Inc, East Helena, MT

Brett Mccarty, Mccarty Drilling & Pump Inc, Rathdrum, ID

Lyle Smith, Aaaa Well Drilling, Clancy, MT

Jay Stetson, Water Well Services Inc, Kalispell, MT

George Woelich, Woelich Drilling & Service, Bighorn, MT

Water Well Drillers

William (Ty) Callison, Callison Well Drilling, Alberton, MT

Bruce Goswick, Mahurin Drilling, Bozeman, MT

Greg Lamphier, Treasure State Drilling, East Helena, MT

William Morrison, Sudan Drilling Inc, Kila, MT

John Odell, Treasure State Drilling, East Helena, MT

Terry Raprager, Treasure State Drilling, Helena, MT

Jese Stetson, Water Well Services Inc, Kalispell, MT

Russell Woodland, Red Tiger Drilling, Manhattan, MT

Monitoring Well Constructors

Jesse Cannon, Cascade Drilling Inc, Portland, OR

Thomas Keogh, Environmental West Exploration, Spokane, WA

Rodney Labrosse, Cascade Drilling Inc, Portland, OR

Donald Larson, Cascade Drilling Inc, Portland, OR

Ernest Lucas, Inberg Miller Engineers, Riverton, WY

Robert Malkuch, Y-Environmental, Sheridan, WY

Todd Mecham, Cascade Drilling Inc, Woodenville, WA

Matthew Winfield, Prosonic Corporation, Portland, OR

Steve Zimmeron, Prosonic Corporation, Portland, OR

Continuing Education Opportunities

Please remember that 4 hours of continuing education is required prior to license renewal each July. This requirement is mandated by law. Continuation education credits do not carry over from one year to the next. Don't wait until the last minute to scramble for credits and don't forget that you are required to show proof of attendance. Below are several possible training opportunities.

Conventions and Conferences	Date	Location	Phone
Washington State Ground Water Association Annual Convention	Sep. 28-30, 2006	Pasco, WA	(306) 757-1551
Montana Section AWRA Annual Conference - Montana's Lakes and Wetlands: Improving Integrated Water Management	Oct. 12-13, 2006	Polson, MT	(406) 994-6690
Oregon Groundwater Association Fall Conference	October		(503) 390-7080
California Groundwater Association Annual Convention	Nov. 2-4, 2006	Lake Tahoe, NV	(707) 578-4408
National Ground Water Association Expo	Dec. 5-8, 2006	Las Vegas, NV	(800) 551-7379
Idaho Ground Water Association Annual Convention	January		(208) 524-2475
Utah Ground Water Association Annual Convention	January		(801) 495-2224
Montana Water Well Drillers Association Annual Convention	February		(406) 665-3304
Mountain States Groundwater Expo	February	Laughlin, NV	(480) 609-3999
Oregon Groundwater Association Spring Conference	March		(503) 390-7080
Courses			
School for Water & Wastewater Operators & Managers (Montana Environmental Training Center)	Oct. 2-5, 2006	Bozeman	(406) 265-3763
Pumps Workshop (Montana Environmental Training Center)	Dec. 13, 2006	Havre	(406) 265-3763
Other Training Opportunities			
Franklin Pumps	Various	Various	(970)-371-1275
2M Company	Various	Various	(406) 245-3008
Montana Occupational Safety & Health Training Institute	Various	Various	(406) 444-6401
Montana Dept. of Environmental Quality	Various	Various	(406) 444-2691
American Water Works Association	Various	Various	(303) 794-7711

Public Water Supply Wells

The Montana Department of Environmental Quality has fined a number of water well contractors for constructing public water supply wells without DEQ approval. If you are drilling a public water supply well for a client, make sure you have a copy of the approval document before beginning construction.

Well Logs

The Department of Natural Resources is still receiving well logs from drillers/contractors. Please remember that all well logs need to be sent to the Bureau of Mines & Geology:

GWIC
1300 W. Park St.,
Main Hall 322,
Butte, MT 59701-8997

Well logs can also be completed electronically using DrillerWeb. For more information, contact Luke Buckley at GWIC (406-496-4336)

Websites to Bookmark

General Information

BWWC webpage and Board Members
http://www.dnrc.mt.gov/wrd/water_op/bwwc/default.asp

Rules and Laws

BWWC - Montana Codes Annotated (MCA)
http://www.dnrc.mt.gov/wrd/water_op/bwwc/bwwcadmin_rules1.asp

BWWC - Administrative Rules of Montana (ARM)
http://www.dnrc.mt.gov/wrd/water_op/bwwc/bwwc_mtcodesannotated.asp

DEQ - Public Water Supply Laws and Rules
http://www.deq.mt.gov/wqinfo/pws/LawsRules.asp

DEQ - Circular 1: Standards for Water Works
http://www.deq.mt.gov/wqinfo/pws/docs/DEQ-1_final.pdf

GIS / Mapping

Montana Natural Resource Information System (NRIS) including Topofinder
http://nris.mt.gov/interactive.html

Montana Cadastral Mapping Program
http://gis.doa.mt.gov/

Driller/Contractor Links

Well Log Report Forms (Form 603) for drillers
http://www.dnrc.mt.gov/wrd/water_rts/wr_general_info/wrforms/603.pdf

Montana Environmental Training Center (METC)
http://www.msun.edu/grants/metc/training.asp

Northwest Environmental Training Center (NWETC)
http://www.nwetc.org/

Landowner Links

Well Drilling for the Prospective Owner
http://www.dnrc.mt.gov/wrd/water_op/bwwc/pdfs/waterwelldrillowner.pdf

Water Rights Information
http://www.dnrc.mt.gov/wrd/water_rts/default.asp

Groundwater Information

Groundwater Information Center (GWIC)
http://mbmggwic.mtech.edu/

Montana Bureau of Mines and Geology (MBMG)
http://www.mbmg.mtech.edu/

300 copies of this document were published at an estimated cost of .40 per copy. The total cost of $120.00 includes $120.00 for printing and $0.00 for distribution.

Persons with disabilities who need an alternative, accessible format of this document should contact:

DNRC, 1424 9th Avenue
PO Box 201601
Helena MT 59620-1601

406-444-6643
Fax 406-444-1475
TDD 406-444-6837

Board of Water Well Contractors
PO Box 201601
Helena MT 59620-1601